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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/572,683	03/20/2006	Johan Torsner	2380-966	4939

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EXAMINER	
BEYEN, ZEWDU A	

ART UNIT	PAPER NUMBER
4144	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/572,683	TORSNER, JOHAN	
	Examiner	Art Unit	
	ZEWDU BEYEN	4144	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03/20/2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *03/20/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-28 have been examined and are pending.

Information Disclosure Statement

2. An initialed and dated copy of Applicant's IDS form 1449 submitted 03/20/2006, is attached to the instant Office action.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.,* 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims **1-3, 5-11, 13, 14, 16, 17, 19, 20, 22, 26, 27,** and **28** are rejected under 35 U.S.C. 103(a) as being unpatentable over, Stephen to **(US-PGPUB- 20040114593)** in view of Vayanos to **(US-PGPUB- 20050022098).**

Regarding claims 1 and 15, Stephen teaches **analyzing at the medium access control layer some or all of a header of a radio link control data unit associated with the one data flow** (Stephen , paragraph 38, discloses A MAC PDU is first received (step 401). The header of the MAC PDU is read for determining the priority of the MAC PDU, and an appropriate reordering buffer is chosen (step 405))

based on the analysis, determining at the medium access control layer a priority of the data unit relative to other data units associated with the one data flow (paragraph 38, discloses the header of the MAC PDU is read for determining the priority of the MAC PDU, and an appropriate reordering buffer is chosen (step 405))

Stephen silent on, **scheduling at the medium access control layer transmission of higher priority data units associated with the one data flow before lower priority data units associated with the one data flow**

However, Vayanos teaches **scheduling at the medium access control layer transmission of higher priority data units associated with the one data flow before lower priority data units associated with the one data flow** (Vayanos, [0061], discloses the UTRAN MAC-hs entity includes a scheduling/ priority handling entity 410, an HARQ entity 420, and a TFRC entity 430. The scheduling/priority handling entity manages the data flows from the MAC-d entity according to their priorities, determines the TSN and priority queue for each packet being processed, and determines the transmission/retransmission of packets. The

data flows from the MAC-d entity may include data with different priorities, which would then be placed in different priority queues. Data would thereafter be retrieved from the proper priority queue, based on priority and resource availability, and further processed for transmission/retransmission on the HS-DSCH)

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Stephen, by including scheduling at the medium access control layer transmission of higher priority data units associated with the one data flow before lower priority data units associated with the one data flow, as suggested by Vayanos. This modification would benefits the system of Stephen to transmit data according to the data's priority level.

Regarding claims 2, and 16, the combination of Stephen -Vayanos teach **the method in claim 1, wherein the analyzing step includes determining the priority based on radio link control data unit header information that does not explicitly indicate a priority for the data unit** (Stephen, Paragraph 38, discloses the header of the MAC PDU is read for determining the priority of the MAC PDU, the header has no specific indication of priority scheme, and an appropriate reordering buffer is chosen (step 405)).

Regarding claims 3 and 17, the combination of Stephen -Vayanos teach **the method in claim 1, wherein the determining step further comprises: determining whether the data unit is a control type of data unit or a data type of data unit, and determining the priority based on**

the determined data unit type (Stephen, Paragraph 38, discloses the header of the MAC PDU is read for determining the priority of the MAC PDU. Once the data's header read, its type will be known).

Regarding claims 5 and 19, the combination of Stephen -Vayanos teach **the method in claim 1, wherein the determining step further comprises: determining a sequence number for the data unit, and determining the priority based on the determined sequence number** (Vayanos, [0090], discloses FIG. 6A is a diagram graphically illustrating the window maintained for a particular priority queue. The data for this priority queue is transmitted in packets that are identified by a 6-bit TSN. The TSN number space is 2.sup.6=64 (i.e., from 0 through 63).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of the combination by including determining a sequence number for the data unit, and determining the priority based on the determined sequence number as suggested by Vayano. This modification would benefit the combination by implementing data identification technique for determining priority.

Regarding claims 6 and 20, the combination of Stephen -Vayanos teach **the method in claim 5, wherein the determining step further comprises: determining a highest sequence number of multiple data units associated with the one data flow** (Vayanos, [0090], discloses

the data for this priority queue is transmitted in packets that are identified by a 6-bit TSN. The TSN number space is 2.sup.6=64 (i.e., from 0 through 63)

and determining which of the other data units associated with the one data flow is a retransmission based on the determined highest sequence number(Vayanos, [0066], discloses The reordering entity for each re-ordering buffer reorders the recovered packets in the buffer according to the TSN assigned to each packet. Each priority queue is associated with its own sequence of TSNs that means originally transmitted or retransmitted has theirs TSNs)

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of the combination by including determining a highest sequence number of multiple data units associated with the one data flow and determining which of the other data units associated with the one data flow is a retransmission based on the determined highest sequence number, as suggested by Vayanos ,for the same reasoning the examiner supplied in claims 5 and 19 above.

Regarding claims 7 and 21, the combination of Stephen -Vayanos teach **the method in claim 6, wherein the determining step further comprises: taking into account a modulo sequence numbering in determining which data units are retransmissions**(Vayanos, [0090], discloses the data for this priority queue is transmitted in packets that are identified by a 6-bit TSN. The TSN number space is 2.sup.6=64 (i.e., from 0 through 63) and, [0066], discloses the reordering entity for each re-ordering buffer reorders the recovered packets in the buffer according to the

TSN assigned to each packet. Each priority queue is associated with its own sequence of TSNs that means originally transmitted or retransmitted has theirs TSNs).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of the combination by taking into account a modulo sequence numbering in determining which data units are retransmissions, as suggested by Vayanos ,for the same reasoning the examiner supplied in claims 5 and 19 above.

Regarding claims 8 and 22, the combination of Stephen –Vayanos teach **the method in claim 2, wherein the determining step further comprises: determining a type of control data unit, and determining the priority based on the determined type of control data unit** (Stephen, Paragraph 38, discloses the header of the MAC PDU is read for determining the priority of the MAC PDU, by reading the header the type can be determined).

Regarding claims 9 and 23, the combination of Stephen –Vayanos teach **the method in claim 2, further comprising: storing data units associated with the one data flow in a memory at the medium access control layer so that higher priority data units are accessed for transmission before lower priority data units** (Vayanos, [0061], discloses The data flows from the MAC-d entity may include data with different priorities, which would then be placed in different priority queues. Data would thereafter be retrieved from the proper priority queue, based on priority and resource availability, and further processed for transmission/retransmission on the HS-DSCH).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of the combination by storing data units associated with the one data flow in a memory at the medium access control layer so that higher priority data units are accessed for transmission before lower priority data units, as suggested by Vayanos. This modification would benefit the combination by allowing storing of data and transmitting the data according to their priority when needed.

Regarding claims 10, the combination of Stephen –Vayanos teach **the method in claim 9, further comprising: removing duplicate data packets from the memory** (Stephen, [0040], discloses memory is allocated for each new RLC PDU, while the memory for the processed MAC PDU is simultaneously de-allocated (step 440). The RLC layer will then perform RLC functions to the RLC PDUs (step 445) the functions may include, but are not limited to, segmentation and reassembly; concatenation; padding; transfer of user data; error correction; duplicate detection; flow control; sequence number check; protocol error detection and recovery; ciphering; and SDU discarding).

Regarding claims 11 and 24, the combination of Stephen –Vayanos teach **the method in claim 9, wherein the analysis further comprises: analyzing information in a payload portion of the radio link control data unit** (Stephen, [0055], discloses the MAC-hs sublayer first receives and serially concatenates one or more MAC-d PDUs from a particular priority queue to form the payload for the MAC-hs PDU. Padding bits may be added as necessary to fill

out the payload. The MAC-hs sublayer then adds a header with the payload to form the MAC-hs PDU).

Regarding claims 13, 26, and 28, the combination of Stephen –Vayanos teach **the method in claim 1, wherein the radio network includes a node B coupled for communication with a radio network controller (RNC), and wherein the higher radio link layer is a radio link control (RLC) layer implemented in the RNC and the medium access control layer is a high speed-downlink shared channel (HS-DSCH) medium access control layer implemented in the node B** (Stephen, [0004] discloses a node which communicate with their peer layers in the WTRU. The node has a peer physical layer 25, a peer MAC layer 23, a peer RLC layer 21 and a peer RRC unit, and [0015] discloses For HS-DCSH, which occurs only on the downlink, the total buffer size is defined as the maximum total buffer size across all MAC reordering entities and all RLC AM entities supported by the WTRU).

Regarding claims 14 and 27, the combination of Stephen –Vayanos teach **the method in claim 13, wherein the method does not rely on priority-specific signaling from the RNC to the node B to perform the determining step** (Stephen, Paragraph 38, discloses the header of the MAC PDU is read for determining the priority of the MAC PDU the header has no specific indication of priority scheme, and an appropriate reordering buffer is chosen (step 405), by implementing this technique the node categorizes the data for prioritization purpose).

Claims **4, 12, 18, and 25** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Stephen- Vayanos as applied to claim 1 above, and further in view of Yi to **(US-PGPUB-20060062323)**

Regarding claims 4 and 18, the combination of Stephen- Vayanos silent on, **the method in claim 1, wherein the determining step further comprises: prioritizing retransmission of a previously-transmitted data unit associated with the one data flow over an original transmission of a data unit associated with the one data flow**

However , Yi teaches **the method in claim 1, wherein the determining step further comprises: prioritizing retransmission of a previously-transmitted data unit associated with the one data flow over an original transmission of a data unit associated with the one data flow** (Yi, [0025], discloses retransmitted PDUs are given higher priority over first time transmitted PDUs)

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of the combination by including prioritizing retransmission of a previously-transmitted data unit associated with the one data flow over an original transmission of a data unit associated with the one data flow as suggested by Yi. This modification would benefits the system of the combination by allowing data with undelivered status will be transmitted first so that it will reduce latency.

Regarding claims 12 and 25, the combination of Stephen –Vayanos silent on, **the method in claim 11, wherein the determining step further comprises: if a polling bit is set in a first data unit associated with the one data flow, setting the polling bit in the header of a second data unit associated with the one data flow with a priority higher than that of the first data unit**

However, Yi teaches **the method in claim 11, wherein the determining step further comprises: if a polling bit is set in a first data unit associated with the one data flow, setting the polling bit in the header of a second data unit associated with the one data flow with a priority higher than that of the first data unit** (Yi, [0022], discloses the re-transmitted PDUs are left in the re-transmission buffer until the transmission is determined to be successful. Re-transmitted PDUs may be given priority over first-transmitted PDUs, and it is possible to set a polling bit in the re-transmitted PDU).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of the combination including if a polling bit is set in a first data unit associated with the one data flow, setting the polling bit in the header of a second data unit associated with the one data flow with a priority higher than that of the first data unit, as suggested by Yi. This modification would benefit the combination by implementing data identification technique for determining priority.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zewdu Beyen whose telephone number is (571)-270-7157. The examiner can normally be reached on 8:00-5:30 Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Taghi T. Arani can be reached on (571) 272-3787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/ZEWDU BEYEN/
Examiner, Art Unit 4144

/Taghi T. Arani/

Supervisory Patent Examiner, Art Unit 4144